

An annotated check-list of Ecuadorian Papilionidae

(Lepidoptera, Papilionidae)

by

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Abstract: An up-to-date list of ecuadorian Papilionidae is given. Informations from literature, examination of specimens in museums or private collections, as well as brief field-notes on the eco-ethology of the species under consideration are presented.

Introduction

Ecuador, comparatively to its small extension (approx. 300,000 km²) has one of the richest faunas in the Neotropics.

Ecuadorian lepidoptera are far from being thoroughly known and only few groups, mainly in check-lists or material included in revisionary studies, have been treated over the years. Many Papilionoidea coming from the collections made by BUCKLEY and SIMON were described by HEWITSON (1869, 1869-77). DOGNIN (1887-96) reported on collections made in the Loja area by GAUJON. Other lepidoptera, collected by WHYMPER and by STÜBEL, were described by GODMAN & SALVIN (1891) and WEYMER (1890), respectively. The collecting trips of DE MATHAN, BARON, ROSENBERG and other entomologists gave some important informations, mainly incorporated in the ROTHSCILD & JORDAN (1906) revision. HAENSCH (1903a, b) gave informations on his itinerary and a list of the Ithomiines he collected.

CAMPOS (1927) published a catalogue of ecuadorian Lepidoptera but his informations are very often misleading.

FEYER (1933, 1934-35) reported on his collections made mainly in the Macas area.

An invaluable source of information about zoological and entomological expeditions as well as gazetteer of localities is found in BROWN (1941).

After a long gap of time, BLANDIN (1977, 1978), BLANDIN & DESCIMON (1971, 1975), and DESCIMON & MAST DE MAEGHT (1971) contributed to the knowledge of the systematics and distributions of Ecuadorian Brassolini, *Morpho* and *Heliconius*. Following revisions of Brassolini (BRISTOW, 1981, 1982, 1991), Nymphalidae (JENKINS, 1983, 1984, 1985a, 1985b, 1986, 1987), Heliconiini and Ithomiidae (BROWN, 1979), many new taxa were added to the ecuadorian fauna.

As far as Papilionidae are concerned, some new species and forms of this country were described by NIEPELT (1908a, 1908b, 1909) and by some other authors, but the most useful compendium of this family was made by BROWN (1953a, 1953b, 1954), although he misidentified some species.

Unfortunately, many old locality labels are inaccurate or completely false and this fact may give rise to erroneous interpretations on species distribution (VANE-WRIGHT et al., 1975).

Following new researches and field trips in Ecuador, the systematics and distribution of the Papilionidae are reviewed and summarized in this paper. A total amount of 60 species including 2 doubtful records are reported from Ecuador.

The systematic arrangement follows mainly BROWN (1991, and unpublished notes), but the genus *Papilio* (s.l.) is retained.

In the appendix a list of ecuadorian localities is given, where important collections of lepidoptera have been made.

Geographical and ecological notes

Ecuador comprises roughly three distinct areas, namely the Occidente, the Oriente and the Sierra, that is the Andean Cordilleras. The andean mountains are constituted of two parallel volcanic ranges from N to S, connected by transverse ridges which form several interandine valleys (Callejones) comprising from 1500 to 3000m. The two volcanic chains present some 30 high peaks, amongst which Chimborazo, Antisana, Sangay, Tungurahua, Pichincha, Reventador, whose explorations are dealt with in WHYMPER (1892). Among these mountain ranges various páramos appear as those of El Angel, with the characteristic Freilejones (*Espeletia*), of Pichincha and of Chimborazo.

Several rivers excavated deep valleys, those in the eastern part are more numerous and tributaries of the Amazon. In the west the most important are Rio Mira, Rio Guayllabamba and Rio Daule, in the east Rio Coca, Rio Napo, Rio Pastaza and Rio Morona.

According to WALTER (1985), Ecuador falls in the zoniobiomes I and II and in the zonoecotone I-II. The zoniobiome I comprises territories characterized by equatorial humid diurnal climate with evergreen tropical rain forests. The zonoecotone I-II and the zoniobiome II are characterized by semi-evergreen forests, and by the humid-arid tropical summer-rain regions, respectively.

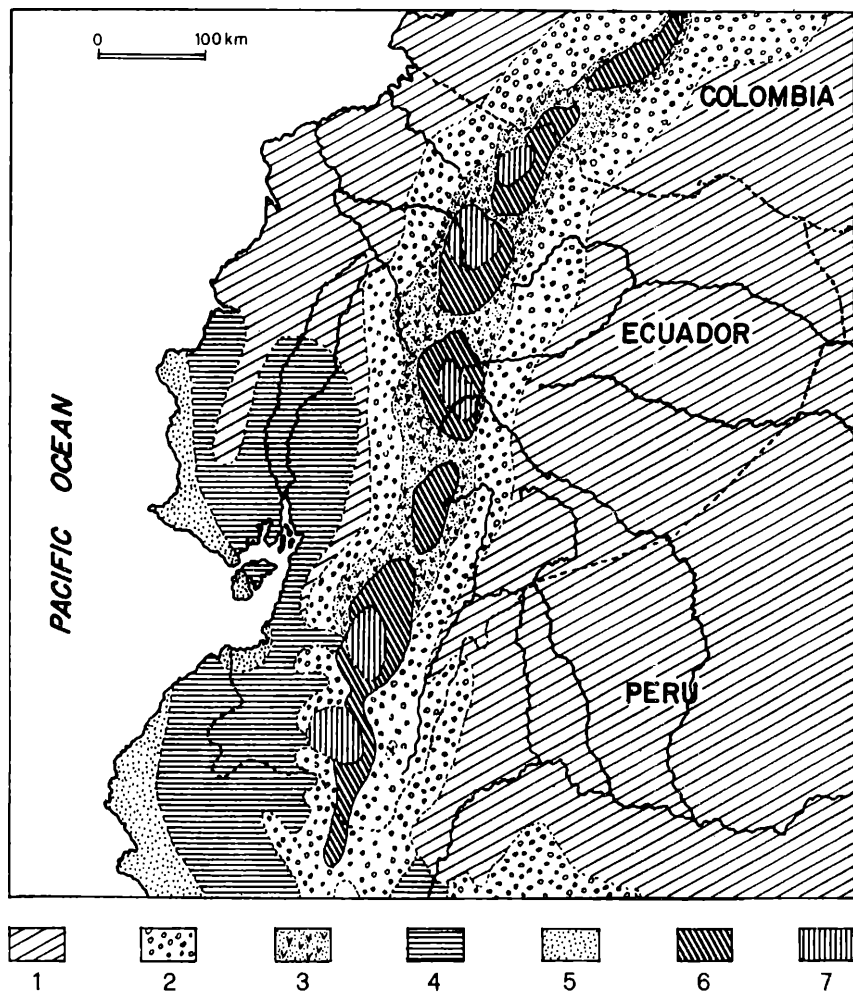
The life-zones of Ecuador were defined by CHAPMAN (1926) on the basis of the distribution of birds. Varied classifications of the geobotanics and of the vegetational features of Ecuador were given by many authors in the past.

ACOSTA-SOLIS (1968, 1977) refined them and distinguished 18 different vegetational belts along a west-east transect. Using the same transect, at different latitudes, diverse belts or life-zones can be recognized as follows:

- 1) Sea and Shore: coastal marshes and mangroves, especially in the provinces of Esmeraldas, Manabí and Guayas.
- 2) Humid Tropical, Subtropical and Temperate: north, central and western slopes of the Andean up to 200-800, 800-1800 and 1800-2800m, respectively. The vegetational formations known as "ceja andina" extend between 2800-3200m.
- 3) Arid Tropical: western coast, mainly in the provinces of Guayas, El Oro and Loja, from sea level to 500m.
- 4) Arid Subtropical: slopes of south western Andes and dry intermontane valleys up to 2000m.
- 5) Arid Temperate: Idem, from 2000-3000m.
- 6) Páramos: along the interandean plateau between 3500 and 4500m and above the "ceja", on both cordilleras.
- 7) Humid Temperate (Bosque andino submesotermico), 2800-3500m.
- 8) Humid Subtropical: 1800-2800m.

- 9) Humid Upper Tropical (Selva pluvial mesotermica oriental): 800-1800m.
 10) Humid Tropical (Selva pluvial macrotermica oriental): 200-800m.

The map (fig. 1) shows the features of the phytogeographical regions of Ecuador (re-drawn after ACOSTA-SOLIS, 1977 and DESCIMON, 1985).



1 – Subdesertic formations; 2 – Savannah and deciduous forests; 3 – Montane and pre-montane forests; 4 – Paramo; 5 – Dry interandine areas; 6 – Rain forests; 7 – Interandine cultivated areas; Interrupted line: international boundaries.

Abbreviations

BMNH = The Natural History Museum, London
 ZSM = Zoologische Staatssammlung, Munich
 TR = Coll. T. RACHELI, Rome.

Systematic list

Troidini

Battus polydamas (LINNAEUS, 1758)

This widely distributed species is always scarce in the eastern part, while it may be locally common in the western part; it was extremely abundant near Tonchigüe during August 1983. It may be hypothesized that there being only two other *Aristolochia*-feeders in the west (*P. eurimedes timias* and *P. panares*), there is no competition for trophic resources, while in the Amazonian area there are many species which share *Aristolochia* foodplants.

Distribution: Palmar; Playas de Juan Montalvo; Abitagua; Puyo; La Merced (BROWN, 1942). Rio Latas; Macas; Tonchigüe, in coll. TR.

Battus madyes philetas (HEWITSON, 1969)

This is a locally common species restricted to montane forests from 1400 to 2300m. Two groups of populations can be distinguished. One population, to which the name *philetas* should be applied, is distributed in the Loja area, and another one has its range along the Pastaza valley (RACHELI & PARISET, 1992).

Distribution: Baños; Loja; Zamora (ROTHSCHILD & JORDAN, 1906); Normandia 1400m (FEYER, 1933); Rio Blanco, Yungilla; La Merced; Macas (BROWN, 1942); Riobamba 2000m; San Antonio 2300m; Rio Blanco 2300m; Rio Verde; Zemora 2000m, in coll. TR.

Battus belus varus (KOLLAR, 1850)

This widely spread hylean species is rare in Ecuador, and restricted to the lowest foothills of the eastern Andes. Only a few specimens are known and it is not possible to assume if the females are dimorphic. In fact, only one specimen from Zarayaquillo of the form *varus* is known.

Distribution: Archidona (ROTHSCHILD & JORDAN, 1906). Rio Upano (FEYER, 1934); Zarayaquillo, 1 ♀, in coll. BMNH. Misahualli; Rio Pununo; Rio Topo? in coll. TR.

Battus ingenuus (DYAR, 1907)

This transandean species reaches its southern limit in SE Ecuador where it is fairly common even though not plentiful. Individuals are more often found along muddy trails where they alight to puddles. This species is scarcely found in western Ecuador and it is not reported from south of Santo Domingo de Los Colorados.

Distribution: Jatunyacu; Puyo; Sucua; Huagrayacu; Bonboiniyacu; Rio Arajuno (BROWN, 1942). Archidona (HAENSCH, 1903a). Rio Topo 800m; Napo; Pano; El Auca; Yanahurco; Rio Arajuno; Rio Umbuni; Rio Pumayacu 700m; Shinguipino, in coll. TR.

Battus lycidas (CRAMER, 1777)

A very rare species in Ecuador, even if it is widely distributed in the Neotropics. Only a few specimens have been collected in the Rio Napo area.

Distribution: Archidona (HAENSCH, 1903a). Coca (ROTHSCHILD & JORDAN, 1906). Misahualli, in coll. TR.

Battus crassus (CRAMER, 1777)

This species presents two different subspecies on the two sides of the Andes. The western subspecies (*epidus*) is apparently restricted to the Loja area with no reports for localities between Colombia and south Ecuador. In the eastern part the nominate subspecies occurs, locally common between 600 and 1000m.

Battus crassus crassus (CRAMER, 1777)

Distribution: Archidona (HAENSCH, 1903a). Coca (ROTHSCHILD & JORDAN, 1906); Huagrayacu 900m; Bonboiniyacu 900m (BROWN, 1942). Napo; S. José Nayo; Puyo; Pano; Apuya; Misahualli; Puyo, 30 km S, Indillana 900m; Rio Arajuno; Pununo; Rio Latas; Topo 1000m; El Auca, in coll. TR.

Battus crassus lepidus (FELDER & FELDER, 1861)

Distribution: Loja; Zamora (ROTHSCHILD & JORDAN, 1906).

Parides phalaecus (HEWITSON, 1869)

A rare and almost unknown species restricted to the forests of the south eastern parts of the country. It has approximately the same distribution as *Battus streckerianus* (HONRATH, 1884); this latter is linked to the xeric formations of Marañon (LAMAS, 1982; BROWN, 1987). OTERO & BROWN (1986) report *P. phalaecus* for scrubs and cloud forests, above 1500m, in the upper Marañon and Santiago areas. The species range extends also into north Peru (RACHELI & PARISSET, 1992).

Distribution: Huamboya; Zamora; Loja (ROTHSCHILD & JORDAN, 1906).

Parides chabrias chabrias (HEWITSON, 1852)

This is a very uncommon species not collected in recent times. The only true ecuadorian specimens seem to be those reported by FEYER (1934) from Sarayacu, which is a locality suitable for this species. BROWN (1953a) illustrates a female of *P. c. ygdrasilla* (HEMMING, 1935) that undoubtedly does not originate from Ecuador.

Distribution: Sarayacu (FEYER, 1934). "Ecuador" (GROSE-SMITH & KIRBY, 1902; as *Papilio nymphas* GROSE-SMITH, 1902).

Parides pizarro (STAUDINGER, 1884)

BROWN (1942, 1953a) reports this species from Puyo. The illustration shows a female which seems unlikely to represent this species and, more probably, is a female of *P. aeneas bolivar*. Even if it cannot be discarded the presence of *P. pizarro* in Ecuador, it should have been found in the lowest eastern part of the country.

Parides orellana (HEWITSON, 1852)

It is a rare species, of which a few specimens were collected in the neighbourhood of Puerto Misahualli.

Distribution: Misahualli, in coll. TR.

Parides aeneas bolivar (HEWITSON, 1850)

A rather common and sometimes plentiful species found in many localities in the eastern part of the country. Both sexes gather on flowers along bushy creeks, females are found mainly in the deep of the forest.

Distribution: Rio Upano (FEYER, 1934); Mera; La Merced; below Macas (BROWN, 1942). Balzabampa?; El Auca; Yanahurco; Rio Talac; Rio Latas; Misahualli; Rio Arajuno Archidona; Rio Pimpilala; Pununo; Pano; Puyo, in coll. TR.

Parides lysander brissonius (HÜBNER, 1819)

This amazonian species reaches the altitude of 900m. It can be usually seen in single individuals. The females, which are scarce along paths in deep forest, are characterized by the absence of the white spots on the forewings. Some of them have small, rounded and separated red spots on the hindwings, resembling *P. panthonus* (CRAMER, 1780).

Distribution: Archidona (ROTHSCHILD & JORDAN, 1906). Puyo; La Mascota; Huagrayacu, 900m (BROWN, 1942). Tena; Rio Talac; La Julita 400m; Yanahurco; Rio Pununo; Shingui-pino; Pano, in coll. TR.

Parides neophilus napoensis (VAREA DE LUQUE, 1975)

This species, never plentiful, vicarious of the western *P. eurimedes* (CRAMER, 1782), is altitudinally distributed mainly between 600 and 1000m.

Distribution: Tigre 800m; Pano; Apuya; Tena; Talac-Pano 1000m; Napo; San José, 800m; Shingui-pino; Pununo; Arajuno; Archidona; Rio Topo, in coll. TR.

Parides eurimedes timias (GRAY, [1853])

P. timias was for a long time considered a species of its own due to its pattern, different from that of *P. eurimedes*. BROWN (1987) considers it a subspecies of this latter species. *P. e. timias* is widely distributed in the west from the coast to 800m altitude, to which it gets less common. *P. e. potone* (ROTHSCHILD & JORDAN, 1906), described from NW Ecuador, is a synonym.

Distribution: Paramba; Chimbo; La Chima; Babahoyo; Arenillas (ROTHSCHILD & JORDAN, 1906). Palmar (HAENSCH, 1903a). Guayas 300m (BROWN, 1953a); Playas de Juan Montalvo; S. Domingo; Naranjapata; Huigra (BROWN, 1942). 10 km NE Tonchigüe, 200m; Alluriquin; La Puntilla, in coll. TR.

Parides sesostris (CRAMER, 1780)

A very common species in the eastern part up to 1000m. In the west it is distributed in Imbabura but its southern limit is still unknown.

Parides sesostris tarquinius (BOISDUVAL, 1836)

Distribution: Cachabí; Paramba (ROTHSCHILD & JORDAN, 1906).

Parides sesostris sesostris (CRAMER, 1780)

Distribution: Rio Upano (FEYER, 1934); Puyo; Rio Tutenongoza, Sucua 900m; Rio Jondachi; Macas (BROWN, 1942). Tena; Rio Pimpilala; Apuya; Pununo; Rio Blanco 800m; Rio Topo; Guayas, San Jorge 800m; Macas; Pano; Napo; Rio Talac, Rio Latas; El Auca; Puzuno; Shinguipino 450m; Rio Arajuno; Rio Umbuni, in coll. TR.

Parides childrenae (GRAY, 1832)

This uncommon species presents two distinct subspecies, *unimacula* and *oedippus*, in the east and in the west, respectively. The former is restricted to the premontane and montane forests of the eastern side, although the holotype and other old specimens came from "Balzapamba".

Parides childrenae unimacula (JOICEY & TALBOT, 1922)

Distribution: Sucua (BROWN, 1942); 1 ♀ Balzapamba, in ZSM. 1 ♂, 1 ♀ syntypes, Balzapamba, 3 ♂♂, Ecuador, in BMNH; 1 ♂, Misahualli, 1 ♂ Pununo, 700m; 1 ♂ Rio Topo; 12 ♂♂ Rio Anzu, in coll. TR; 1 ♀, Rio Zuñac, in coll. BIAGIONI.

Parides childrenae oedippus (LUCAS, [1859])

Distribution: 1 ♂, Palmar, Manabí 200m (BROWN, 1942).

Parides cutorina (STAUDINGER, 1898)

A very rare species of which only a few specimens of real ecuadorian origin are known. Probably it is mostly distributed in the lowest parts of the Hylaea and reaches its upper altitudinal limit at 800-900m. A form "*dilutus*", with reduced red spots on the hindwings, has been described by JOICEY & TALBOT (1922). These spots are variable in shape and size in the same way they are in other individuals throughout the range of the species.

Distribution: Coca (ROTHSCHILD & JORDAN, 1906). Sarayacu (STRAND, 1912). Tena, Rio Talac, in coll. TR.

Parides vertumnus bogotanus (FELDER & FELDER, 1864)

This widespread species is never common. Single individuals can be encountered along river banks or in steepy creeks. Females are almost always seen inside the forests.

Distribution: Hda La Mascota; La Merced (BROWN, 1942). Napo; Rio Blanco 800m; Rio Topo; Apuya; Pano; Piritishka; Rio Arajuno; Rio Pununo; Rio Umbun; Rio Pumayacu; Rio Latas, in coll. TR.

Parides panares paralius (ROTHSCHILD & JORDAN, 1906)

This is the vicariant of *P. vertumnus* and it has its range on the western part of the Andes. It is locally common and widely distributed.

Distribution: Guayaquil; Chimbo; Naranjas; La Chima (ROTHSCHILD & JORDAN, 1906); Balzapamba 700m; Playas de Juan de Montalvo 30m; Palmar; Naranjapata; Dos Puentes; Hda Cutuguary; Huigra (BROWN, 1942). Alluriquin; Tonchigüe, in coll. TR.

Parides erithalion (BOISDUVAL, 1836)

This species presents different subspecies on each side of the Andes. In the west a striking form with reduced markings is distributed from Alluriquin to the Loja area (RACHELI, in prep.). In the east, along Rio Pastaza, on some tributaries of the Rio Napo, and in the Morona-Santiago area, the populations are known as ssp. *lacydes*, which is characterized by females with large white patches on both wings. This form is altitudinally distributed between 800 and 1400m. Below, a smaller form, of which males show large green-grey patches and females have red bands on the hindwings, seems to be parapatric with *lacydes*. No intergradations or sympatric areas have been found. JOICEY & TALBOT (1924) described a female form "*parvifascia*", characterized by two small white dots on the forewings, and resembling specimens of the subspecies *kruegeri* NIEPELT (1927) from the amazonian southern Colombia. A form similar to "*parvifascia*" is known from Tarapoto, Peru, characterized, however, by band of the hindwings yellow instead of white.

HEWITSON (1869) describing *Papilio lacydes* gave no type locality other than "Ecuador", but later he reported on the trips made by BUCKLEY who collected for a long time at the hacienda Sta Inez (HEWITSON, 1869-77). In the index of localities in fact he gave St. Inez as locality for *P. lacydes*. It would be useful then to restrict this locality as the typical for *Papilio lacydes*.

Parides erithalion lacydes (HEWITSON, 1869)

Distribution: Loja; Zamora; Sta Inez; Ambato; Baños to Canelos; Sarayacu (ROTHSCHILD & JORDAN, 1906); Normandia (FEYER, 1934); Puyo, Sucua, Macas, Hda La Merced, Hda La Mascota (BROWN, 1942). Pintuc, 900m (WEYMER, 1890). Rio Topo 1200m; Rio Blanco 800m; Tena 600m; Rio Zuñac; Rio Engaño 1100m, in coll. TR.

Parides erithalion guillerminae PISCHEDDA & RACHELI, 1986

Distribution: Misahualli, Rio Pununo; Archidona; Yanahurco; Rio Anzu; Rio Illicullin; Rio Talac; Rio Umbun; Atahualpa; Pano, in coll. TR; Macas, in coll. BMNH.

Parides anchises drucei (BUTLER, 1874)

This species is widely distributed especially along the lowest slopes of the eastern Andes. It does not seem to ascend more than 1000m. It has a stable pattern, the females are very similar to those of *P. erithalion guillerminae* and *P. vertumnus bogotanus*. The form *nuca-lensis* ROUSSEAU-DECELLE, 1943 described from Rio Pastaza is a synonym.

Distribution: Archidona; Coca; Zamora; Zarzayacu; Canelos (ROTHSCHILD & JORDAN, 1906). Tena; Apuya; Pununo; Rio Latas; Rio Topo; Tungurahua, Chinchin 800m; Macas; Los Tayos, Pastaza 800m; Misahualli; Pano; Atahualpa; Rio Jatunyacu; Rio Arajuno; Rio Talac; El Auca; Rio Anzu 350m; Rio Illicullin 900m; Arajuno, in coll. TR.

Parides iphidamas calogyne (ROTHSCHILD & JORDAN, 1906)

A locally common species restricted to western countries. It flies from sea-level up to approx. 800m. BROWN (1942) reports this species for Puyo, but it is evidently a mistake.

Distribution: Paramba; Chimbo; Cachabi; Zaruma (ROTHSCHILD & JORDAN, 1906). Balzapamba; Playas de Juan Montalvo; S. Domingo; Palmar; Puyo? (BROWN, 1942). Tinalandia; Quevedo, Finca Corazon 300m, in coll. TR.

Papilionini

Papilio menatius ctesias FELDER & FELDER, 1865

This species has been known for a long time as *Papilio aristus ctesiadus* (ROTHSCHILD & JORDAN, 1906). The males of this common species, often plentiful at puddings, can be found in many places from 500 to 1800m. The females, very rare, are dimorphic, as it is customary to this species, and the form "*therapes*" outnumbers the male-like one. Many specimens in the museums came from Balzapamba but it does not seem to occur on the west side of the Andes, except in the Loja area.

Distribution: Sarayacu; Zamora; Loja (ROTHSCHILD & JORDAN, 1906). Normandia, Rio Upano (FEYER, 1934); Rio Blanco; Rio Topo; Macas (BROWN, 1942). Las Minas; Jondachi 1000m; Archidona; Pununo; Yanahurco; Rio Talac; Rio Topo 1800m; Rio Umbuni 500m; Rio Illicullin 900m; Rio Tena 700m; Rio Pununo, in coll. TR.

Papilio warscewiczii jelskii OBERTHÜR, 1881

This rare species is restricted to the cloud forests of SW Ecuador where it reaches its northern limit being distributed down to Bolivia. The ecuadorian populations are described as ssp. *jelskii* which occurs also in northern Peru. No recent specimens are recorded.

Distribution: Loja (ROTHSCHILD & JORDAN, 1906). Cusarci (BROWN, 1942).

Papilio cacicus LUCAS, 1852

A rare and localized species in the cloud forests of Rio Pastaza and Rio Upano. Possibly it occurs also in the high altitude valleys north of Tena. In Ecuador only red females have

been found, named *upanensis* TALBOT and *ramona* LE CERF & BIEDERMANN, 1933. The species is reported also from Balzapamba where it is unlikely to occur.

The systematics and nomenclature of this species are still not fixed, there not being sufficient specimens, especially females, to show the local variations. A recent note by SALAZAR (1990) on the populations of *P. cacicus* in Colombia shows that in this country it is also an uncommon and localized species whose larvae perhaps feed on Lauraceae. A melanic female from Ecuador is also reported.

Distribution: Balzapamba (HAENSCH, 1903a). Ambato (ROTHSCHILD & JORDAN, 1906). Chanala 1500m (TALBOT, 1929). Rio Macuma (LE CERF & BIEDERMANN, 1933). Normandia (FEYER, 1934); Macas; Abitagua (BROWN, 1942); Baños, in coll. TR.

Papilio euterpinus SALVIN & GODMAN, 1868

This species has the same range in Ecuador of *P. cacicus* and *P. warscewiczii* and shares with them the canopy of cloud forests. It is far from being common and flies very high and swift on the top of the trees. While *P. warscewiczii* and *P. cacicus* sometimes puddle, *P. euterpinus* has never been observed to do that. FEYER (1934) claimed he saw a white female form but he was not able to catch it.

Distribution: Sta Inez 1250m (HAENSCH, 1903a); Chiquinda (KIRBY, 1881); Guadalquiza (= Gualaquiza? type); Zamora (ROTHSCHILD & JORDAN, 1906); Yuquipa, Macas; Normandia (FEYER, 1934); Hda La Mascota; Macas; Rio Topo (BROWN, 1942); 1 ♂, Sta Inez, in coll. TR.

Papilio birchalli HEWITSON, 1863

This species is not reported from Ecuador, but it is likely to occur. 1 ♂ from Balzapamba, FEYER leg., was examined in a private collection.

Papilio xanthopleura SALVIN & GODMAN, 1868

This species is reported on the basis of a single specimen from Rio Napo, in BMNH (JOHNSON et al., 1985). As BROWN (1953a) suggested, this typically amazonian species can be found in the low eastern country.

Papilio zagreus DOUBLEDAY, 1847

P. zagreus is a scarce although widely distributed species. It occurs along steep creeks, flying very high on the top of the trees. Sometimes it comes to the water for puddling. The females are exceedingly rare and only one specimen in the BMNH has been examined. The mythical *Papilio neyi* is known only from a few specimens from the lowest parts of ecuadorian Amazon. It might turn to be, as D'ABRERA (1981) suggests, a well characterized subspecies of *P. zagreus*. On the western countries, with a patchy distribution, *P. ascolius*, considered as a species of its own by some authors, occurs with the subspecies *rosenbergi*. The examination of the few specimens known of this population suggests that these can be included under *P. zagreus ascolius*. In fact, although *rosenbergi* is characterized by the extent of yellow colour, some specimens are indistinguishable from *P. ascolius ascolius* and vice versa.

Distribution: Zamora (ROTHSCHILD & JORDAN, 1906). Macas, Rio Upano (BROWN, 1942). Sucua; Rio Pununo; Rio Illicullin; Rio Arajuno; Rio Ila, 800m; Rio Latas; Rio Pimpilala, in coll. TR.

Papilio "neyi" NIEPELT, 1909

Distribution: Zarayaquillo (FEYER, 1934).

Papilio zagreus ascolius FELDER & FELDER, 1864 = *Papilio rosenbergi* DRUCE, 1903

Distribution: Paramba; Chimbo (ROTHSCHILD & JORDAN, 1906).

Papilio bachus belsazar (NIEPELT, 1908)

This is one of the rarest ecuadorian species, being known only from a few specimens found in localities near Macas and Tena. It seems to prefer altitudes a little higher than those of *P. zagreus*, and it occurs together with *P. zagreus* at 600m, on the Rio Mangocisa (FEYER, 1933). Some museum's specimens came from Balzapamba where it is unlikely to occur. Contrary to BROWN's opinion (1953a) the subspecies is well characterized and quite different from Peruvian or Colombian populations.

Distribution: "Curaray"; Rio Upano; Rio Blanco; Rio Mangocisa (FEYER, 1934); ♂ Type Cusarci, 800m; 2 ♂♂ Balzapamba; 1 ♂ Macas; 2 ♂♂ Ecuador, in coll. BMNH. 1 ♂ Macas, in coll. ZSM. 1 ♀ Cusarci, in COXEY coll. (BROWN, 1942); 1 ♂, Rio Pimpilala, in coll. TR.

Papilio torquatus CRAMER, 1777

A rather scarce species distributed on both sides of the Andes. *P. t. leptalea* is found along the western part from sea-level to 900m. The nominate subspecies, with many female forms, occurs in the east. The f. *flavescens* is a good mimic for the female of *P. aeneas bolivar*.

Papilio torquatus leptalea (ROTHSCHILD & JORDAN, 1906)

Distribution: Naranjas; Zaruma; Chimbo; Balzapamba (ROTHSCHILD & JORDAN, 1906). Balzapamba; Playas de Montalvo (BROWN, 1942); Alluriquin, in coll. TR.

Papilio torquatus torquatus CRAMER, 1777

Distribution: Archidona; Zamora (ROTHSCHILD & JORDAN, 1906); Macas 1050m (BROWN, 1942). Shingupino; Archidona; El Auca; Rio Pununo; Rio Umbuni; Pano; Apuya; Tena; Las Minas; Santa Rosa, 800m, in coll. TR.

Papilio chiansiades WESTWOOD, 1872

This uncommon species is sparingly found in Oriente. It prefers shadowy habitats; it sometimes puddles together with *P. anchisiades*. The ecuadorian populations are characterized by the slight reduction of the designs approaching the colombian *P. c. dospassosi* RÜTI-MEYER, 1969.

Distribution: Coca; Archidona (ROTHSCHILD & JORDAN, 1906). Rio Pimpilala; Rio Umbuni; Rio Talac; Rio Topo; Rio Pununo; Rio Pumayacu; Rio Arajuno; Shinguipino; Jatunyacu, in coll. TR.

Papilio anchisiades DOUBLEDAY, 1846

The species is widespread along both sides of Ecuador but it is never abundant. The western populations are similar to those from Colombia and are somewhat variable. Those from the east can be identified as typical *P. anchisiades*.

Distribution: Balzapamba; Playas de Montalvo; Macas; Huagrayacu (BROWN, 1942). Rio Pimpilala; Misahualli; Rio Topo; Rio Latas; Piritishka; Puyo, in coll. TR.

Papilio isidorus DOUBLEDAY, 1846

P. isidorus and *P. rhodostictus* have puzzled the lepidopterists over the years. JOHNSON & ROZICKY (1986) doubt on the taxonomic arrangement of this species-complex. Because of the poor knowledge of their preimaginal stages, of the scarcity of the insect in Central America, and of the exceedingly rarity of the females, they have been usually considered two different polytypic species. The western populations can be distinguished by the large white patch across the distal part of the cell of the forewings. These are known as subspecies *pacificus*. The eastern populations, very stable in the shape of the forewings, more produced in respect to those of *P. i. pacificus*, differ also for the colour of the spots on the hindwings which can be either yellow or red. Their females seem to be dimorphic; one form has a large white patch on the forewings, the other one is devoid of this patch. It is not known if this apparent dimorphism is correlated with a geographical distribution. Moreover, many museum's specimens came from "Balzapamba", a formerly renowned locality, and also a point of passage from west to the east, wherefrom specimens could have been brought back. It could therefore be possible that some mislabelling occurred because *P. isidorus flavescens* is not reported from the west except Loja area. BROWN (1953a, figs. 20-21) misidentified *P. rhodostictus* as *P. anchisiades*. The same author (BROWN, 1954, fig. 10) illustrates a female of *P. isidorus flavescens* as *M. harmodius xeniades*.

Papilio isidorus flavescens OBERTHÜR, 1880

Distribution: Ambato; Archidona; Coca; Mirador; Zamora; Loja (ROTHSCHILD & JORDAN, 1906); Abitagua 1300m; Huagrayacu (BROWN, 1942). Shinguipino; Macas; Pununo; Rio Tena; Rio Topo; Yanahurco; Rio Zuñac; Napo; Rio Talac; Rio Latas; Mera; Zamora; Puyo, in coll. TR.

Papilio isidorus pacificus (ROTHSCHILD & JORDAN, 1906)

Distribution: Paramba; Lita (ROTHSCHILD & JORDAN, 1906); San Pablo; S. Domingo de los Colorados, in coll. TR.

An endemic ecuadorian species restricted to the western countries. According to HAENSCH (1903a), who described larvae and pupae, the species is locally common among *Citrus* trees, plants on which the larvae feed. The altitudinal range is from sea-level to 800m.

Distribution: Balzapamba; Celica to Sapatillo; Chimbo (ROTHSCHILD & JORDAN, 1906). Balzapamba; Playas de Montalvo (BROWN, 1942). Tinalandia; Alluriquin, in coll. TR.

Papilio hypason CRAMER, 1776

It is a widespread species in the eastern countries although always rare and encountered in single individuals. Both males and females are polymorphic and mimic various *Parides* species. Also the behaviour is similar to that of *Parides*, especially the females' one.

Distribution: Arajuno; El Auca; Umbuni, Rio Pununo; Shinguipino; Misahualli; Yanahurco; Rio Latas; Rio Topo; Rio Pimpilala, in coll. TR.

Papilio astyalus phanias (ROTHSCHILD & JORDAN, 1906)

BROWN (1942) claims this species as the rarest in Ecuador. Although never common, it is widespread in the eastern slopes of the Andes and found preferably along river banks. BROWN (1953a) has illustrated a female form of this species as *P. androgeus*. This form is very distinct from all the known female forms. A similar recent specimen came from Uzhcurumi, south Ecuador.

Distribution: Zamora (Type) (ROTHSCHILD & JORDAN, 1906) Hda Zatayacu, Rio Anzu 600m (BROWN, 1942); Rio Latas; Tena; Rio Illicullin; Jatunyacu; Archidona; Apuya; Uzhcurumi, in coll. TR.

Papilio androgeus CRAMER, 1776

This species occurs on both sides of the Andes and it is scarce everywhere. We have examined only a few western specimens and it is impossible to decide if the populations can be considered as different subspecies. Those from the Amazonian side are characterized by very long tails; the females are of the form *androgeus*, and NIEPELT (1924) named f. *feyeri* a similar form which probably is the same as that reported by FEYER (1933) from Macas. A female of typical f. *laodocus* has been bred from a larva collected in Baños.

Distribution: Paramba; Cachabi (ROTHSCHILD & JORDAN, 1906); S. Domingo; Sucua; La Mascota; Mera; La Zatayacu. Rio Anzu (BROWN, 1942). Macas (FEYER, 1933). Umbuni; Rio Pununo; Rio Arajuno; Misahualli; Baños, in coll. TR.

Papilio thoas LINNAEUS, 1771

Two different subspecies occur in Ecuador, *P. t. nealces* in the western part, where it is scarce from the sea-coast up to 900m, and *P. t. cyniras*, widely distributed in the eastern part, which is often seen puddling on wet sand.

Papilio thoas nealces (ROTHSCHILD & JORDAN, 1906)

Distribution: Guayaquil; Paramba; Cachabí; Chimbo; Rita (= Lita?); Rio Cayapas; Quevedo (ROTHSCHILD & JORDAN, 1906). S. Domingo; Palmar; Dos Puentes; Naranjapata (BROWN, 1942). Tonchigüe; Alluriquin; Rio Toachi, in coll. TR.

Papilio thoas cyniras MÉNÉTRIÉS, 1857

Distribution: Rio Napo; Zamora (ROTHSCHILD & JORDAN, 1906). Puyo; Archidona; La Merced; Bucay (BROWN, 1942). Tena; Rio Pimpilala; Pano; Puerto Orellana; El Auca; Rio Pununo; Rio Latas, in coll. TR.

Papilio paeon BOISDUVAL, 1836

This species seems restricted to the western part of the Cordillera where it is scarce, however less than *P. thoas*. It flies from sea level up to 1800m.

Distribution: Chimbo; Ibarra; Ambato; Zamora (ROTHSCHILD & JORDAN, 1906). Balzapamba; Chanchan 400-2100m; Dos Puentes; Huigra (BROWN, 1942). Rio Toachi, Las Pampas 1800m; Santo Domingo, in coll. TR.

Papilio polyxenes americanus KOLLAR, 1850

A species found in the interandean plateau and along high altitude valleys above 1400m; it can be very abundant sometimes. Larvae feed on cultivated *Daucus*.

Distribution: Cayambe; Baños (ROTHSCHILD & JORDAN, 1906). Loma de Canamballa, Ibarra 2370m; Pululagua 2500m (WEYMER, 1890). Rio Verde 1400m; La Merced, Yungilla (BROWN, 1942). Baños 1700m; Rio Blanco 2000m, in coll. TR.

Graphiini

Protographium agesilaus agesilaus (GUÉRIN & PERCHERON, 1835)

A common, often plentiful species, widely distributed from 300 to 1000m in the eastern side.

Distribution: Archidona; Loja (ROTHSCHILD & JORDAN, 1906). Puyo; Sucua; Jatunyacu; Hua-grayacu; La Zata-yacu (BROWN, 1942). Rio Talac 900m; Rio Jatunyacu; Apuya; Shinguipino; Archidona; El Auca; Rio Arajuno; Tena; Las Minas; Pano 800-1000m; Rio Latas; Apuya; Napo; Rio Talac 1000m, in coll. TR.

Protographium thyastes (DRURY, 1782)

This species presents different populations on each side of the Cordilleras. In the west *P. t. marchandi* has the same distribution of *Eurytides orabilis* and *E. s. serville*, while *P. t. thyastinus* is spread in the east. Both taxa are never common and found from 300 to 800m.

Protographium thyastes marchandi (BOISDUVAL, 1836)

Distribution: Cachabi; Pambelar; Paramba (ROTHSCHILD & JORDAN, 1906). S. Domingo de Los Colorados (BROWN, 1942, 1954).

Protographium thyastes thyastinus (OBERTHÜR, 1880)

Distribution: Archidona; Coca (ROTHSCHILD & JORDAN, 1906). Puyo (BROWN, 1942). Rio Pununo; Rio Latas; Misahualli; Archidona; Tena, in coll. TR.

Protographium dioxippus diores (ROTHSCHILD & JORDAN, 1906)

A very rare species of which was known only the specimen reported by GODMAN & SALVIN (1890) from Curarai, which probably is an erroneous locality. It has been found in only two localities from 800 to 1000m. This species in Ecuador, as well as in many other neotropical countries, has a short phenology.

Distribution: Curarai (BROWN, 1954). Rio Pimpilala 1000m; Pano, in coll. TR.

Protographium leucaspis (GODART, 1819)

A premontane species found only in the east side. It is locally common in the Pastaza valley.

Distribution: Zamora; Archidona (ROTHSCHILD & JORDAN, 1906). Hda S. Francisco 1300m; Rio Margajitas 1250m; Rio Topo; La Merced; La Palmera (BROWN, 1942). Rio Zuñac 1400m; Rio Topo 800-1400m; Rio Talac 1000m; Pano, in coll. TR.

Eurytides orabilis orabilis (BUTLER, 1872)

This species is one of the last discovered in Ecuador. It seems to be rather localized and to have the same distribution as *E. serville columbus*.

Distribution: Lita; Rio Mira, in coll. TR. Rio Toachi (ROZICKY, 1987).

Eurytides callias (ROTHSCHILD & JORDAN, 1906)

A typical amazonian species which does not reach the mesotermic forest.

Distribution: Coca (ROTHSCHILD & JORDAN, 1906). Oriente (BROWN, 1942). Zarayaquillo (FEYER, 1934).

Eurytides serville (GODART, [1824])

This species presents one well characterized subspecies on each side of the Cordillera. The western subspecies, *E. s. columbus*, is locally scarce from the colombian boundaries down to Sto Domingo de Los Colorados. In the east the species is more widely distributed but never common.

Eurytides serville serville (GODART, [1824])

Distribution: Archidona; Loja; Zamora (ROTHSCHILD & JORDAN, 1906). Zarayaquillo (FEYER, 1934 sub *columbus*). Jatunyacu; La Mascota (BROWN, 1942). Rio Topo; Las Minas; Archidona; Shinguipino; Rio Engaño 1100m, in coll. TR.

Eurytides serville columbus (KOLLAR, 1850)

Distribution: Rio Lita; Paramba (ROTHSCHILD & JORDAN, 1906). Rio Llurimagua 800-1100m (BROWN, 1942). Sto Domingo de los Colorados; Rio Mira, in coll. TR.

Eurytides dolicaon deileon (FELDER & FELDER, 1865)

An uncommon species, perhaps more abundant in lowest countries of the amazonian side. It does not reach more than 800m.

Distribution: Coca (ROTHSCHILD & JORDAN, 1906). Rio Latas; Rio Pununo; Shinguipino; Rio Topo, Rio Arajuno, in coll. TR.

Cosmodesmus telesilaus (ROTHSCHILD & JORDAN, 1906)

A very common species in the east, very rare in the west and in the Loja area where the subspecies *earis* was described.

Cosmodesmus telesilaus earis (ROTHSCHILD & JORDAN, 1906)

Distribution: ♂ Type, Zamora, 3 ♂♂, Zaruma (ROTHSCHILD & JORDAN, 1906). Zamora; Zaruma; Playas de Montalvo (BROWN, 1942).

Cosmodesmus telesilaus telesilaus (FELDER & FELDER, 1864)

Distribution: Archidona; Rio Napo (ROTHSCHILD & JORDAN, 1906). Pacaiyacu, Rio Bobonaza (BROWN, 1942). Yanahurco; Puyo; El Auca; Misahualli; Rio Arajuno; Rio Topo; Rio Latas; Tena, in coll. TR.

Cosmodesmus protesilaus (LINNAEUS, 1758)

This species is often found together with *C. glaucolaus*, *C. molops* and *C. telesilaus* along river banks where it puddles. It is more common on the eastern part while in the west it is rare and rather localized. The western populations are known as *C. protesilaus archesilaus*.

Cosmodesmus protesilaus archesilaus (FELDER & FELDER, 1865)

Distribution: Guayaquil, Paramba (ROTHSCHILD & JORDAN, 1906). Balzapamba (BROWN, 1942).

Cosmodesmus protesilaus protesilaus (LINNAEUS, 1758)

Distribution: Archidona (ROTHSCHILD & JORDAN, 1906). Coca; Yanahurco, Misahualli, in coll. TR.

Cosmodesmus molops (ROTHSCHILD & JORDAN, 1906)

This species is present on both slopes of the Andes. In the west the nominate subspecies occurs, rather uncommon, in the lowlands. In the east the populations are known as subspecies *hetaerius* which is fairly widespread from 300 to 900m.

Cosmodesmus molops hetaerius (ROTHSCHILD & JORDAN, 1906)

Distribution: Coca; Archidona (ROTHSCHILD & JORDAN, 1906).

Cosmodesmus molops molops (ROTHSCHILD & JORDAN, 1906)

Distribution: Type ♂, Rio Cayapas; 1 ♂ Cachabí (ROTHSCHILD & JORDAN, 1906). Palmar (BROWN, 1942).

Cosmodesmus glaucolaus leucas (ROTHSCHILD & JORDAN, 1906)

A moderately common species found in the east side as subspecies *leucas*. It might be found also in the west side, in the extreme north.

Distribution: Coca; Archidona (ROTHSCHILD & JORDAN, 1906). Rio Jondachi; Jatunyacu (BROWN, 1942).

Mimoides xynias (HEWITSON, 1875)

(BROWN, 1991) asserts that *M. trapeza* is a subspecies of *M. xynias*. It seems that there are no intermediate forms, at least upon examination of approx. 80 specimens of *M. trapeza* in Ecuador and 60 of *M. xynias* from various localities. *M. xynias* in Ecuador is less common than *M. trapeza*, it is distributed from 300 to 1000m, and it flies in the same spots of *M. trapeza* although they were not collected together perhaps due to different phenologies.

M. xynias xisuthrus (NIEPELT, 1908), described from the Rio Pastaza, is a junior synonym.

Distribution: Rio Cotopino (BROWN, 1953a). Zarayaquillo (FEYER, 1934). Rio Pumayacu; Yanahurco; Pununo; Napo; Rio Talac 600m; Topo; Puyo; Rio Latas, in coll. TR.

Mimoides trapeza (ROTHSCHILD & JORDAN, 1906)

A rather common species found only on the eastern side between 300 and 1000m. The female was described and illustrated by NIEPELT (1908a) as *P. harmonius xeniades* f. *jarbas*. Subsequently, the same author (NIEPELT, 1927) described and illustrated correctly the female. Females are very rare and perfect mimics of the females of *Parides sesostris*.

JOICEY & TALBOT (1922) described the subspecies *concoloratus* on one male and one female, the former is the specimen referred by ROTHSCCHILD & JORDAN (1906), ex GROSE-SMITH collection, the latter is from Balzapamba. Both specimens are characterized by the absence of the white markings. Recent material supports the view that it is a melanic form occurring in both sexes.

Distribution: Rio Napo; Rio Curarai; Sta Inez; Aguano; Sarayacu (ROTHSCHILD & JORDAN, 1906). Zarayaquillo (FEYER, 1934). Rio Blanco, near Macas; Hda La Mascota (BROWN, 1942). Puyo; Las Minas; Topo 800m; Apuya; Tena; Pano; Piritishka; Pununo; Rio Pimpilala;

Rio Illicullin; El Auca; Napo; Rio Pununo; Rio Umbuni; Shinguipino; Rio Arajuno; Rio Latas, in coll. TR.

Mimoides xeniades xeniades (HEWITSON, 1867)

This is the most common species of *Mimoides* found especially along the Rio Pastaza valleys from 600 to 1300m. In the western part it is less common and only scattered specimens are known. The female shows a white pattern (form *virginia*) being an exact mimic of *P. erithalion lacydes*. A female which is devoid of the white markings on the forewings has been described as form *androna* by ROTHSCILD & JORDAN (1906) on the basis of the holotype from Zamora. BROWN (1991) claims it to be the female of *M. trapeza*. BROWN (1941) reports that 2/3 of the specimens have orange spots instead of red. The examination of more than 200 specimens does not show this variation.

Distribution: Zamora; Archidona; Sta Inez (ROTHSCILD & JORDAN, 1906). Rio Blanco; Rio Topo; Macas; Huagrayacu; La Mascota (BROWN, 1942). Yanahurco; Rio Engaño; Topo 1200m; Rio Zuñac; Rio Pimpilala; Apuya; Tena; Las Minas; Occidente, Rio Nene 800m; Tinalandia, in coll. TR.

Mimoides euryleon (HEWITSON, [1856])

A local species distributed on both sides of the Andes, from 500 to 1200m, in two different subspecies. It is never common and only single individuals are encountered. The females are quite rare and good mimics of various species of *Parides* (BROWN, 1991). *P. euryleon insidiosus* BOULLET & LE CERF, 1912, described from Rio Napo, is a synonym of *M. euryleon anatmus*.

Mimoides euryleon haenschii (ROTHSCILD & JORDAN, 1906)

Distribution: Paramba; Balzapamba (ROTHSCILD & JORDAN, 1906). Balzapamba; La Lorena; Pichincha; S. Domingo; Dos Puentes; Naranjapata (BROWN, 1942). Rio Pastaza; Alluriquin; Uzhcurumi, in coll. TR.

Mimoides euryleon anatmus (ROTHSCILD & JORDAN, 1906)

Distribution: Sta Inez; Archidona; Zamora (Type); Loja (ROTHSCILD & JORDAN, 1906). Hda La Mascota (BROWN, 1942). Macas; Rio Pununo; Archidona; Pano; Rio Topo, in coll. TR.

Mimoides ariarathes (ESPER, 1788)

An uncommon species in the eastern part where two forms, *gayi* and *cyamon*, occur. In the lowest NE countries also f. *illuminatus* may be found. *Papilio charoba* was described by KIRBY (1881) on an undetermined number of specimens from Rio Pastaza. The examination of the holotype in BMNH revealed that it somewhat resembles f. *cyamon*, although the red spots on the hindwings are more rounded. Other specimens from Ecuador, however, are typical form *cyamon*, and others form *gayi*. The few females examined show the forewings completely black, being good mimics of *Parides* females with which they occur together.

Distribution: Archidona; Coca; Aguano (ROTHSCHILD & JORDAN, 1906). Pano; Talac; Misahualli (f. *gayi*). Pununo; Pano; Rio Topo (f. *cyamon*), in coll. TR.

Mimoides phaon (BOISDUVAL, 1836)

This species is restricted to the western side where it is very uncommon, perhaps for its phenology which is restricted during march and april. The ecuadorian populations can be considered as subspecies *therodamas* (FELDER & FELDER, 1864).

Distribution: Paramba (ROTHSCHILD & JORDAN, 1906). Santo Domingo, La Lorena 550m (BROWN, 1942). Rio Pilalò, in coll. TR.

Mimoides pausanius (HEWITSON, 1852)

A widespread and locally common species in the amazonian side where it is mainly found at low altitudes. It has not been reported from the western countries.

Distribution: Zarayaquillo (FEYER, 1934). Coca 250m; Atahualpa; Misahualli; El Auca; Pununo; Rio Pumayacu; Pano, in coll. TR.

Appendix

Locality, altitude and province.

Abitagua, 1300m, Pastaza; see Mera.
Aguano, 400m, Napo; see Misahualli.
Alluriquin, 700-1000m, Pinchincha.
Ambato, 2577m, Tungurahua.
Anzu, rio, 600-1200m, Tungurahua; see Topo.
Apuya, 600m, Napo.
Archidona, 630m, Napo.
Arenillas, 300m, El Oro.
Atahualpa, 600m, Napo.
El Auca, 500m, Napo.
Babahoyo, 50m, Los Rios.
Balzapamba, 630m, Bolivar.
Baños, 1820m, Tungurahua.
Blanco, rio, 2000m, Santiago-Zamora.
Blanco, rio, 800-1500m, Tungurahua.
Bomboiniyacu, 900m, Pastaza.
Bucay, 300m, Guayas.
Cachabl, rio, 200m, Esmeraldas.
Canelos, 600m, Pastaza.
Cayambe, 2800m, Pichincha.
Cayapas, rio, 200m, Esmeraldas.
Celica, 2200m, Loja.

Chanala, 1500m, Santiago-Zamora.
Chanchan, rio, 400-2100m, Chimborazo.
Chiguinda, 1300m, Morona-Santiago.
La Chima, 300m, Bolivar.
Chimbo, 350m, Chimborazo.
Chinchin, 800m, Tungurahua.
Coca, 200m, Napo; see Puerto Francisco de Orellana.
Copotaza, rio, 700m, Pastaza.
Corazon, Finca, 300m, Los Rios; see Quevedo.
Cotapino, rio, 400m, Napo.
Cotapino; see Cotapino, rio.
Curaray, 200-800m, Napo.
Cusarci, 1300m, Morona-Santiago; see Macas.
Cutuguay, Hacienda, 300m, Chimborazo.
Dos Puentes, 500m, Chimborazo.
Engaño, rio, 1100m, El Oro.
Guadalquiza; see Gualaquiza.
Gualaquiza, 750m, Morona-Santiago.
Guayaquil, sea level, Guayas.
Huagrayacu, 900m, Pastaza.
Huamboya, 1500-4000m, Santiago-Zamora.
Huigra, 1200-2000m, Chimborazo.
Ibarra, 2370m, Imbabura.
Ila, rio, 800m, Napo.
Illicullin, rio, 900m, Napo; see Tena.
Indillana, 900m, Pastaza.
Jatunyacu, rio, 700m, Napo.
Jondachi, rio, 1000m, Napo; see Tena.
La Julita, 400m, Tungurahua.
Latas, rio, 500m, Napo.
Lita, 500-1200m, Imbabura.
Lurimagua, rio, 800-1100m, Imbabura.
La Lorena, Hacienda, 600m, Pichincha.
Macas, 500-1500m, Santiago-Zamora.
Macuma, rio, not located.
Mangocisa, rio, 600m, Morona-Santiago; see Macas.
Mapoto, rio, 1200m, Tungurahua.
Margajitas, rio, 1250m; see Mapoto.
La Mascota, Hacienda, 1500m, Tungurahua.
Mera, 1100m, Pastaza.
La Merced, Hacienda, 1600m, Tungurahua.
Las Minas, 650m, Napo; see Misahualli.
Mira, rio; see Lita.
Mirador, 1500m, Tungurahua; see Mapoto.
Misahualli, 600m, Napo.
El Monje, Loja; see Loja.

Nanegal, 1400m, Pichincha.
 Napo; see Puerto Napo.
 Naranjapata, 600m, Chimborazo.
 Naranjas; see Naranjapata.
 Nene, rio, 800m, Pichincha.
 Normandia, Hacienda, 1300m, Morona-Santiago; see Macas.
 Pacayacu, rio, 300m, Pastaza.
 Pacaiyacu, rio; see Pacayacu.
 Palmar, 200m, Manabi.
 La Palmera, 1200m, Tungurahua; see Topo.
 Pambelar, not located (ROTHSCHILD & JORDAN, 1906).
 Las Pampas; see San Francisco de las Pampas.
 Pano, 700m, Napo; see Tena.
 Paramba, Hacienda, 800-1200m, Imbabura.
 Pilalò, rio, 1000m, Los Rios.
 Pimpilala, rio, 900-1100m, Napo; see Tena.
 Pintuc, 900m, Pastaza; see Puyo.
 Piritishka, 800m, Pastaza.
 Playas de Juan Montalvo, 50-200m, Los Rios.
 Puerto Francisco de Orellana, 200m, Napo.
 Puerto Napo, 400m, Napo.
 Puerto Orellana; see Puerto Francisco de Orellana.
 Pululagua, 2500m, Pichincha.
 Pumayacu, rio, 700m, Napo.
 La Puntilla, Guayas.
 Pununo, rio, 700m, Napo; see Misahualli.
 Puyo, 800m, Pastaza.
 Puzuno, 400m, Napo; see Aguano.
 Quevedo, 150m, Los Rios.
 Riobamba, 2000m, Chimborazo.
 San Antonio, 2300m, Tungurahua; see Baños.
 San Francisco de las Pampas, 1800m, Pichincha.
 San Francisco, Hacienda, 1300m; see Mapoto.
 San Jorge, Hacienda, 800m, Guayas.
 San José, 800m, Napo.
 Santa Ana Maria, Hacienda, 600m, Los Rios; see Quevedo.
 Santa Inez, Hacienda, 1200-1600m, Tungurahua.
 Santa Rosa, 800m, Napo.
 Santo Domingo de los Colorados, 500-900m, Pichincha.
 Sapatillo; see Zapotillo.
 Sarayacu, 700m, Pastaza.
 Sarzayacu, 600m, Napo.
 Shinguipino, 450m, Napo.
 Sucua, 800m, Santiago-Zamora.
 Talac, rio, 700-900m, Napo.
 Los Tayos, 800m, Pastaza.

Tena, 500-700m, Napo.
 Tigre, rio, 800m, Tungurahua.
 Tinalandia, 799m, Pichincha.
 Toachi, rio; see Alluriquin.
 Tonchigüe, 200m, Esmeraldas.
 Topo, rio, 1200-1600m, Tungurahua.
 Tutenongoza, rio, 900m; Santiago-Zamora; see Sucua.
 Umbuni, rio, 600m; see Misahualli.
 Upano, rio, 800m, Santiago-Zamora.
 Uzhcurumi, 700m, El Oro.
 Verde, rio, 1400-1500m, Tungurahua.
 Yanahurco, 500m, Napo; see Misahualli.
 Yunguilla, 1600m, Tungurahua.
 Yuquipa, rio, 900m; see Macas.
 Zamora, 1000m, Zamora-Chinchipe.
 Zapotillo, 300m, Loja.
 Zarayaquillo, 300m, Pastaza; see Sarayacu.
 Zaruma, 1000m, El Oro.
 Zarzayacu; see Sarzayacu.
 Zatayacu, Hacienda, 600m, Napo.
 Zuñac, rio, 1500m, Tungurahua; see Topo.

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